

REMARKS

Claims 1-16, 18 and 19 are pending. Claims 1-12, 14-16, and 18 are withdrawn from consideration in the present application. Claims 13 and 19 are rejected. As Applicants submit this Response within two months of the Final Rejection, Applicants look forward to an Advisory Action or Notice of Allowance.

Rejection under 35 U.S.C. § 103

The Examiner rejects claims 13 and 19 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 6,812,339 (effective date October 20, 2000) in view of U.S. Patent Application Publication No. 2005/0159373 (effective filing date March 22, 2001) and Marin *et al.* (*Br. J. Cancer* 76: 923-9, 1997). U.S. Patent Number 6,812,339 allegedly teaches amino acid sequence 10387 which is 99.9% homologous to SEQ ID NO: 1 of the instant application, a DTD polypeptide. Moreover, antibodies directed against amino acid sequences 10387 are allegedly identified as modulators (*citing*, Column 34, lines 36-41; Column 36, line 59-column 37, line 2) that can be administered to treat disease (*citing*, Column 35, Columns 58-65). The Examiner says that Marin *et al.* teach the DTD enzyme is associated with breast tumors (*citing*, page 1, section 0011; page 19, sections 0198-0204 and 0209-0212; and page 20, sections 0221 and 0222) and that DTD bioreactive drugs may be therapeutic.

The Examiner says that the large number of sequences in U.S. Patent 6,812,339 and Marin *et al.* concluding that “DTD-mediated chemotherapy should be indicated only for individual patients with a demonstrated very high level of activity of this particular enzyme measured in tumor biopsy specimens” does not teach away from the present invention. Thus Marin *et al.* envision giving a normal chemotherapeutic agent for activation to individuals identified as having high levels of DTD expression in tissue samples taken from their cancer.

The prior art does not teach or suggest a method for treating breast cancer by administering a therapeutically effective amount of an antibody capable of binding to at least one Diastrophic Dysplasia (DTD) polypeptide

Applicants reiterate that this is a completely different mechanism to that employed in the currently claimed invention. *Marin et al. do not teach or suggest using DTD as a target for cancer for therapy (particularly breast cancer therapy).* Likewise, *Marin et al. do not teach or suggest employing antibodies specific to DTD in therapy.* Applicants believe that their earlier explanations regarding U.S. Publication No. 2005/0159373 are successful since the Examiner does not reiterate the earlier comments regarding this reference.

The Examiner summarily dismisses Applicants' previous arguments that one of ordinary skill in the art would not combine U.S. Patent 6,812,339 and *Marin et al.* because U.S. Patent 6,812,339 does not teach or suggest anything specific about DTD. Applicants reiterate that the patent merely provides the nucleotide sequence encoding the same. Further, *even if, assuming arguendo, the teachings of these two documents are combined, they do not provide the presently claimed invention.* Rather, *combining the references merely provides modulation of DTD to increase the levels of the enzyme in cancerous tissue so that it would be a more effective activator of a chemotherapeutic agent* (i.e. to render the latter more toxic in the tissue than the parent compound). As such, a combination of U.S. Patent 6,812,339 and *Marin et al.* does not produce the presently claimed invention. The present invention provides a method of treating breast cancer by modulating the activity of DTD. Thus, the Examiner has failed to set forth a proper *prima facie* case of obviousness.

The Examiner is using hindsight

Applicants reiterate these arguments and explanations and reiterate that the rejection is improper on these bases alone. Applicants further respectfully submit that the Examiner is using hindsight in the rejection. That is, the Examiner is using the knowledge of the present invention to color the teachings of the prior art. An objective reading of *Marin et al.* without using the teachings of the present invention provides that "chemotherapy should be indicated only for individual patients with a demonstrated very high level of activity of this particular enzyme

measured in tumor biopsy specimens. “ The DTD enzyme serves as an activator for the chemotherapeutic.

Applicants respectfully remind the Examiner that chemotherapy is simply a toxin that kills both healthy and cancerous cells, but since cancerous cells are generally multiplying faster than healthy cells, the cancerous cells are, at least in theory, killed first. Applicants further submit that a teaching regarding DTD activated chemotherapy is not the same as a teaching that DTD itself is a target against which therapies may be directed. Marin *et al.* do not teach or suggest that DTD may be a target for treating breast cancer. The present invention is based in part upon that novel discovery that DTD itself may be a target for treating breast cancer. As the prior art does not teach DTD as a target for treating breast cancer, the prior art likewise does not teach or suggest that antibodies specific to DTD are useful for treating breast cancer.

U.S. Patent Application Publication No. 2005/0159373 teaches a completely unrelated protein

Applicants submit that U.S. Patent Application Publication No. 2005/0159373 is not relevant to the patentability of the instant invention since WUP is a completely unrelated protein to DTD. A ClustalW multiple alignment demonstrates that DTD does not align to the patent sequences of U.S. Patent Application Publication No. 2005/0159373. Furthermore, a Blastp similarity search of the sequences of U.S. Patent Application Publication No. 2005/0159373 against the Uniprot database does not identify DTD or any member of the solute carrier family that DTD belongs to. In view of the foregoing, Applicants submit that WUP proteins are not relevant in considering DTD.

U.S. Patent 6,812,339 does not teach or suggest that DTD may be a target for treating breast cancer

The Examiner does not suggest that U.S. Patent 6,812,339 teaches that DTD may be a target for treating breast cancer. Applicants submit that one of ordinary skill in the art would certainly not consider the teachings of U.S. Patent 6,812,339 until the usefulness of DTD as a target for therapy was known. Since the usefulness of DTD as a target for therapy was not known until the present invention, disclosing the sequence itself does not render the presently claimed invention obvious. Stated differently, the prior art does not teach or suggest that DTD may be a target for treating breast cancer.

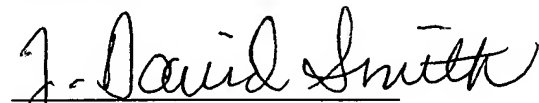
Fees

No fees are believed to be necessitated by this amendment. However, should this be an error, authorization is hereby given to charge Deposit Account No. 11-1153 for any underpayment or to credit any overpayment.

Conclusion

It is believed that the claims are in condition for allowance. In the event that there are any issues that may be resolved by telephone, the Examiner is respectfully urged to call the undersigned at the telephone number indicated below.

Respectfully submitted,

A handwritten signature in cursive script that reads "J. David Smith". The signature is written in dark ink and is positioned above a horizontal line.

J. David Smith
Attorney for Applicant(s)
Registration No. 39,839

KLAUBER & JACKSON
411 Hackensack Avenue
Hackensack, New Jersey 07601
(201) 487-5800